

REMARKS

Applicant thanks the Examiner for consideration given this application. Claims 1, 5, 8-11, 14-15, 18 and 20-35 are presently pending. Claims 1 and 11 are independent. Claims 1, 11, 14 and 15 have been amended and claims 2-3 and 12-13 have been canceled.

Applicant respectfully requests reconsideration of the rejected claims in light of the amendment and remarks presented herein, and earnestly seek timely allowance of all pending claims.

Claim Rejections – 35 USC §112

The Examiner rejected claims 1-35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the applicant regards as the invention. In particular, the Examiner rejects these claims because of insufficient antecedent basis for recitations of “groups” in claims 1 and 11.

This rejection is respectfully traversed. Applicant has amended claim 1 to recite “creating new groups [...]; counting a number of the points within each of the groups and obtaining a plurality of specific groups from among the new groups” and claim 11 to recite “a calculating device for obtaining a plurality of specific groups from among the new groups.”

In view of the above, Applicant respectfully requests reconsideration and withdrawal of the 35 U.S.C. 112, second paragraph rejection of the claims.

Rejections Under 35 U.S.C. § 103

Claims 1-3, 5-6, 8-9, 11-12, 14-20, 22, 26-28 and 32-35 are rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Takeshita et al. (“Takeshita”, U.S. Patent 7,084,907) in view of Ishii et al. (“Ishii”, U.S. Patent 7,009,640) and Kehtarnavaz et al. (“Kehtarnavaz”, U.S. Patent 7,184,080). Claims 10 and 21 are rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Takeshita in view of Ishii, Kehtarnavaz and further in view of Hubina et al. (“Hubina”, U.S. Patent 6,876,384). Claims 23 and 29 are rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Takeshita in view of Ishii and Kehtarnavaz and further in view of Higuchi (“Higuchi”, U.S. Patent 7,151,563). Claims 24 and 30 are rejected under 35 U.S.C. §

103(a) as allegedly being unpatentable over Takeshita in view of Ishii, Kehtarnavaz and further in view of Takemoto (“Takemoto”, U.S. Patent 7,081,918). Claims 25 and 31 are rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Takeshita in view of Ishii, Kehtarnavaz, Higuchi and Takemoto.

These rejections are respectfully traversed.

Applicant traverses this rejection. Applicant respectfully submits the Examiner has failed to establish a *prima facie* case of obviousness.

Independent claim 1 has been amended to include dependent claims 2 and 3, and independent claim 11 has been amended to include dependent claims 12 and 13.

Independent claim 1 recites, *inter alia*, “determining distances between points which represent the color information for said plurality of division areas in the color space which is represented by R/G and B/G; creating new groups for said (R/G, B/G) points using said distances between said points, wherein said step of creating new groups comprises grouping the color information for adjacent division areas in the same group when said acquired distance is less than or equal to a predetermined value; counting a number of the points within each of the groups and obtaining a plurality of specific groups from among the new groups based on said number of the points so that the number of points in each of said specific groups is greater than or equal to a predetermined number; obtaining R/G gains and B/G gains for each of said plurality of specific groups, wherein the R/G gain and B/G gain for each specific group make color information representing said each specific group to be the neutral gray (N gray); calculating white balance correction values using the plurality of R/G gains and B/G gains for said plurality of specific groups.”

Amended independent claim 11 recites, *inter alia*, “a grouping device for determining distances between points which represent the color information for said plurality of division areas in the color space which is represented by R/G and B/G, and creating new groups for said (R/G, B/G) points using said distances between said points, wherein the grouping device calculates distances between the points which represent color information between said division areas on a color space represented by R/G and B/G, and groups the points which represent color information for said division areas in the same group when said acquired distance is less than or

equal to a predetermined value; a counting device for counting number of the points within each of the groups; a calculating device for obtaining a plurality of specific groups from among the new groups based on said number of the points so that the number of points in each of said specific groups is greater than or equal to a predetermined number, obtaining R/G gains and B/G gains for each of said plurality of specific groups, wherein the R/G gain and B/G gain for each specific group make color information representing said each specific group to be the neutral gray (N gray), and calculating white balance correction values using the plurality of R/G gains and B/G gains for said plurality of specific groups.”

Takeshita, Ishii and Kehtarnavaz do not discuss the above features recited in claims 1 and 11, as explained below.

1. Takeshita, Ishii and Kehtarnavaz do not discuss “determining distances between points which represent the color information for said plurality of division areas in the color space which is represented by R/G and B/G; creating new groups for said (R/G, B/G) points using said distances between said points, wherein said step of creating new groups comprises grouping the color information for adjacent division areas in the same group when said acquired distance is less than or equal to a predetermined value” as recited in claim 1.

In the Office Action, the Examiner considered the 160 sets of chromaticity data in Takeshita to represent the claimed points, and alleged that Takeshita obtains a plurality of specific groups. The Examiner acknowledged that Takeshita does not disclose the steps of determining distances between points and creating new groups using distances between points (page 4 of Office Action). The Examiner then alleged that Ishii discloses these features at col. 21 lines 3-40.

However, col. 21 lines 3-40 of Ishii do not disclose these features recited claim 1. Col. 21 lines 3-40 of Ishii describe calculating values of photographic signals RiGiBi for spectral reflectance data, and “selecting ten photographic signals RiGiBi in the small to large order of a distance Di from a predetermined sample photographic signal RsGsBs” (i.e., selecting ten photographic signals RiGiBi nearest to the sample photographic signal RsGsBs).

Claim 1 recites creating new groups for said (R/G, B/G) points using said distances

between said points, wherein said step of creating new groups comprises grouping the color information for adjacent division areas in the same group when said acquired distance is less than or equal to a predetermined value. Ishii does not disclose or suggest this feature. In Ishii, the ten photographic signals RiGiBi nearest to the sample photographic signal RsGsBs are selected, without placing any condition on the distance between RiGiBi and reference signal RsGsBs to be less than or equal to a predetermined value. In fact, the nearest ten RiGiBi signals may be located at any distance from reference signal RsGsBs, as there is no constraint on their distance to RsGsBs. The only constraint is that the selected RiGiBi points be the ten points, and this constraint does not place an upper limit on the RiGiBi- RsGsBs distance.

Claim 1 recites creating new groups (note plural form) for said (R/G, B/G) points. Ishii does not create plural groups. Ishii only selects ten photographic signals RiGiBi nearest to the sample photographic signal RsGsBs, but multiple groups of photographic signals RiGiBi are not created.

The Examiner also mentioned col. 6 lines 66 - col. 7 line 9 and col. 10 lines 1-67 in Takeshita with respect to claim 3, which has now been incorporated in claim 1. Col. 6 lines 66- col. 7 line 9 of Takeshita only mention Fig. 6 which is a predetermined achromatic color distribution for varying color temperatures and is not the result of grouping the color information for adjacent division areas in the same group when an acquired distance between points is less than or equal to a predetermined value. Takeshita does not calculate distances between points in order to group those points. Col. 10 lines 1-67 of Takeshita only describe conglomerating data included in multiple areas in Fig. 6 to obtain R/G and B/G averages. Again, no calculation of distances between points is performed in Takeshita for grouping data points.

Takeshita is an image capturing device that includes a gain adjustment device that performs a gain adjustment by multiplying the image-capturing signal output by the image capturing element by the gain calculated by the gain calculating device (*See Abstract*). While Takeshita may contain many graphs within the figures, none represent the color space represented by R/G and B/G and no embodiment of Takeshita creates new groups for (R/G, B/G) points using distances between points (Figures 9-11).

Kehtarnavaz does not determine distances between points which represent the color

information for a plurality of division areas, either. In Kehtarnavaz (col. 6 lines 23-45) the color space is divided into a number of sectors, with color points in each sector representing similar looking colors. Within each sector, a prototype color is compared to all the reference colors (under one of the set of illuminants) in that sector. This is done by computing the closeness in hue of the prototype and the reference colors. Therefore, Kehtarnavaz does not determine distances between prototype colors themselves, and does not create groups based on distances calculated between prototype colors.

In conclusion, Takeshita, Ishii and Kehtarnavaz do not determine distances between points and do not create new groups for (R/G, B/G) points using distances between points.

2. Takeshita, Ishii and Kehtarnavaz do not discuss “counting a number of the points within each of the groups and obtaining a plurality of specific groups from among the new groups based on said number of the points so that the number of points in each of said specific groups is greater than or equal to a predetermined number; obtaining R/G gains and B/G gains for each of said plurality of specific groups [...]; calculating white balance correction values using the plurality of R/G gains and B/G gains for said plurality of specific groups” as recited in claim 1.

In the Office Action, the Examiner alleged that the 160 sets of chromaticity data in Takeshita are points, that an area with the largest number of sets of chromaticity data is a specific group (page 3 of Office Action) and that Ishii teaches counting a number of points within each of the groups at col. 21 lines 3-40 (page 4 of Office Action).

Applicant disagrees. Claim 1 recites obtaining a plurality of specific groups from among the new groups based on number of points for specific groups (the new groups for (R/G, B/G) points which were created in the previous step, using the distances between said points).

In steps S22 and S30, Takeshita uses only one pixel area (the pixel area containing the largest number of sets of chromaticity data, or one area which conglomerates areas 3 and 4) to calculate averages of R/G and B/G for these pixels. Therefore, in these cases, Takeshita does not obtain R/G gains and B/G gains for each of a plurality of pixel areas. The Examiner considers an area with the largest number of sets of chromaticity data in Takeshita to be a specific group. However, claim 1 recites that a plurality of specific groups are obtained, and this is not

performed in Takeshita.

Claim 1 recites obtaining a plurality of specific groups from among the new groups based on said number of the points. The areas of chromaticity data for the 160 sets of chromaticity data in Takeshita are not new groups for (R/G, B/G) points created using distances between said points, by grouping the color information for adjacent division areas in the same group when an acquired distance is less than or equal to a predetermined value. Takeshita does not obtain such new groups (as the Examiner acknowledged) and Ishii does not remedy the deficiency of Takeshita, as explained on pages 14 and 15 of this Reply. Thus, even if an area with the largest number of sets of chromaticity data in Takeshita were considered a specific group (which Applicant does not admit to), this area was not obtained from among new groups created with the use of distances between points.

Claim 1 recites obtaining a plurality of specific groups from among the new groups based on said number of the points so that the number of points in each of said specific groups is greater than or equal to a predetermined number. The area with the largest number of sets of chromaticity data in Takeshita was not obtained using any predetermined threshold for the number of points. No threshold condition on the number of points (in the selected largest group) is disclosed in Takeshita.

Claim 1 recites counting a number of the points within each of the groups. The Examiner alleged that Ishii teaches counting a number of points within each of the groups at col. 21 lines 3-40 (page 4 of Office Action). However, as explained on pages 14 and 15 of this Reply, Ishii does not count a number of points within groups (note plural form). Ishii only selects ten photographic signals RiGiBi nearest to the sample photographic signal RsGsBs, and there are no groups in which to count points, because only one set of points is formed, and furthermore that set of points has, by design, ten points.

Neither Takeshita nor Ishii obtain a plurality of specific groups in which the points of (R/G, B/G) are included, the plurality of specific groups being used for calculating white balance correction values as claim 1 recites. Takeshita calculates averages of R/G and B/G at all pixels in areas with color temperatures close to 5000K (steps S29, S21, S24, S25). In step S29, for example, the CPU 35C calculates the averages of R/G and B/G by using all the data

contained in, for instance, the areas 3 and 4 (“the data in the area 3 and the area 4 are utilized in this process to calculate the averages of R/G and B/G with data in areas corresponding to sunlight with color temperatures close to 5000 K”, col. 10 lines 1-7). The processing in Takeshita is different from obtaining R/G gains and B/G gains for each of said plurality of specific groups, as recited in claim 1, because Takeshita does not obtain R/G gains and B/G gains for each pixel area.

Takeshita groups together all data in areas with color temperatures close to 5000K, or all data in areas 3 and 4, and calculates the averages of R/G and B/G. At col. 10 lines 20-25, Takeshita states that “the white balance adjustment is executed by multiplying all the values of the R signals and the B signals in the entire area in which the image-capturing element 26 captures an image by the white balance adjustment R gain and the white balance adjustment B gain respectively regardless of in which of the 160 pixel areas the color signals that were utilized in the light source type estimate were detected by the color sensor 86.” This is not using a plurality of specific groups in which the points of (R/G, B/G) are included, for calculating white balance correction values, because Takeshita does not determine a plurality of R/G gains and B/G gains for a plurality of specific groups, and does not calculate white balance correction values using such plurality of R/G gains and B/G gains. For only one area (the area with the largest number of data, or the conglomerated area of regions 3 and 4, for example) Takeshita calculates the averages R/G and B/G for this area and uses the averages for white balance adjustment.

Claim 1 recites obtaining R/G gains (that is, more than one R/G gain) and B/G gains (that is, more than one R/G gain) for each of said plurality of specific groups and calculating white balance correction values using the plurality of R/G gains and B/G gains for said plurality of specific groups. Takeshita, on the other hand, uses only one set of data and not multiple specific groups, and obtains just one R/G value (the average R/G value for the data in the area with largest number of chromaticity data) and just one B/G value (the average B/G value for the data in the area with largest number of chromaticity data) (col. 10 lines 13-15).

Kehtarnavaz, mentioned on top of page 5 of the Office Action in the context of “obtaining R/G gains and B/G gains for each of said plurality of specific groups” does not

actually disclose this feature. Col. 2 lines 33-54 of Kehtarnavaz do not describe R/G gains and B/G gains for a plurality of groups, and col. 6 line 61-col. 7 line 45 describes a histogram (Fig. 5B) illustrating scores of illuminants and the use of a table (top of col. 7) containing predetermined white balance gains for colors for different color temperature illuminants (col. 6 lines 62-67). None of the parameters mentioned therein are R/G gains and B/G gains which are obtained through the processing recited in claim 1 for a plurality of specific groups. Kehtarnavaz simply uses predetermined gains associated with the Macbeth reference colors and with certain illuminants.

Thus, while Takeshita discusses how the CPU 35C selects an area with the largest number of sets of chromaticity data among the area 1~6 representing the sunlight sources, this is completely dissimilar to the above-mentioned features of claim 1. The plurality of specific groups of points representing color information on the color space represented by R/G and B/G as claimed in claim 1 are not an equivalent to the chromaticity data of the sunlight sources as discussed in Takeshita in column 9. Thus, a specific group of from among the groups based on said number of the points is distinguishable from Takeshita as well.

Therefore, Takeshita, Ishii and Kehtarnavaz do not teach or suggest the features of claim 1 discussed above.

For reasons similar to those discussed above with respect to claim 1, Takeshita, Ishii and Kehtarnavaz do not teach or suggest a grouping device, a counting device and a calculating device as recited in claim 11.

Applicant submits that the Examiner's reliance on Hubina, Higuchi and Takemoto as allegedly pertaining to incremental features of claims 10, 21, 23, 24, 25, 29, 30, 31 fails to make up for the deficiencies of the asserted Takeshita, Ishii and Kehtarnavaz references discussed above with respect to independent claims 1 and 11. Therefore, the asserted grounds of rejection fail to establish *prima facie* obviousness of any pending claim.

For all of the above reasons, taken alone or in combination, Applicant respectfully requests reconsideration and withdrawal of the 35 U.S.C. § 103 (a) rejection of claims 1 and 11. Claims 5, 8-10, 22-27 and 34 depend from claim 1 and are allowable at least by virtue of their

dependency. Claims 14-15, 18, 20-21, 28-33 and 35 depend from claim 11 and are allowable at least by virtue of their dependency.

CONCLUSION

All matters having been addressed in view of the foregoing, Applicant respectfully requests entry of this Amendment, the Examiner's reconsideration of the application, and the immediate allowance of all pending claims.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Corina E. Tanasa, Registration No. 64,042, at telephone number (703) 208-4003, located in the Washington, DC area, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37.C.F.R. §§ 1.16 or 1.14; particularly, extension of time fees.

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Respectfully submitted,

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